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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,924	03/01/2004	Po-Sung Kao	250112-1040	1436
24504	7590	08/17/2005	EXAMINER	
THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP 100 GALLERIA PARKWAY, NW STE 1750 ATLANTA, GA 30339-5948			CHANG, AUDREY Y	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 08/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/790,924	Applicant(s) KAO ET AL.	
	Examiner Audrey Y. Chang	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on June 15, 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Remark

- This Office Action is in response to applicant's amendment filed on June 15, 2005 which has been entered into the file.
- By this amendment, the applicant has amended claim 1.
- Claims 1-10 remain pending in this application.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Poradish (PN. 5,777,694) in view of the Japanese Patent issued to Yamaguchi (JP 02001023290A).

Claim 1 has been significantly amended which therefore necessitates the new grounds of the rejection.

Poradish teaches a *color filter wheel assembly* (15, Figures 1-5) that is comprised of a *hub* (23, Figures 3-5) serves as the *carrier* that is rotated around *a central axis of the hub or the carrier* and *filter segments* (21), serves as the *color filter that are* fixed to the carrier. **With regard to claim 6**, Poradish further teaches that the filter wheel assembly is connected to a *motor* (15a, Figure 1) via a *shaft* (15b) that is adapted to the center of the hub, which serves as the central axis, of the color wheel for rotating the color filter wheel, (please see columns 3-5).

Art Unit: 2872

Poradish teaches in order to enhance the proper balance of the color wheel assembly when rotated the central portion or the mid-portion of the hub is made thicker so that the hub of the color wheel is mass-loaded around the drive shaft or central axis, (please see Figures 3-5 and column 5, lines 27-31). The mass around the shaft or the central axis is *symmetrically* formed around the axis of rotation or the shaft.

This reference has met all the limitations of the claims with the exception that it does not teach *explicitly* that the carrier has a plurality of holes and the balance of the color wheel is achieved by providing a plurality of balancing elements individually located and radially moveable in the holes of the carriers so that the balancing elements adjust the center of mass of the color filter assembly to be on the central axis. It is implicitly true that by standard *mechanic*, the way to ensure the rotation of the color filter wheel without wobbling due to loss of balance in mass is to have the center of mass of the wheel located on the central axis, (off center of mass will cause non-zero torque force to the wheel and will cause wobbling of the wheel) and such is resulted by symmetrically distributed the weight or mass of the color wheel around the central axis. **Yamaguchi** teaches an arrangement to provide mass-balance to a turntable (i.e. a rotatable wheel) of a spindle motor wherein the turntable is formed with a plurality of holes (3b, Figure 2) with a plurality balls (1) serve as the balancing elements that are individually located and movable radially along the holes so that when the turntable is turned by the spindle motor the movement of the individual balls adjust the center mass of the turntable to correct difference of the centrifugal force in the unbalance state of the turntable, (please see the abstract). With regard to claims 2 and 7, Yamaguchi teaches that the holes are longitudinally arranged toward the central axis and are parallel arranged with respect to the turntable. With regard to claims 3 and 8, Yamaguchi teaches that the holes are symmetrically formed with respect to the central axis. With regard to claims 4-5 and 9-10, the balls or balancing elements are movable within the holes and it is implicitly true that the balls are located at the locations when the center of mass is located at the axis. Although these references do not teach that the holes are threaded however since the same function, namely allowing the balancing elements to move

Art Unit: 2872

within, is achieved, the method of making the holes are considered to be obvious matters of design of choice to one skilled in the art for the benefit of making the holes by the most fitted way.

It would then have been obvious to one skilled in the art to apply the teachings of **Yamaguchi** to modify the color wheel filter assembly of **Poradish** to make the carrier or hub of the filter wheel with a plurality of holes to allow balancing balls individually located and movable within holes in the radial direction to allow *dynamical correction* the center of mass of the color wheel as the color wheel is rotated and therefore to ensure the proper balance of the filter wheel in order to reduce errors in the color filtering function due to the wobbling of the filter wheel.

Response to Arguments

3. Applicant's arguments with respect to **amended** claims 1-10 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

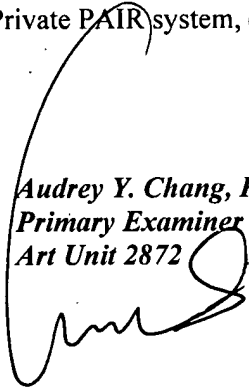
Art Unit: 2872

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Audrey Y. Chang, Ph.D.
Primary Examiner
Art Unit 2872



A. Chang, Ph.D.